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Trade in services for inclusive and sustainable development

Trade in services for inclusive and sustainable development: Water and sanitation, energy and food-related logistics

Note by the UNCTAD secretariat

Executive summary

The achievement of the Sustainable Development Goals contained in the 2030 Agenda for Sustainable Development depends heavily on the services sector, including services dealing with water and sanitation, energy and food-related logistics, all of which have a significant relevance to inclusive and sustainable development. Trade in these services expands this role, thus contributing positively to the achievement of Goals 6, 7, 12 and 17. Progress on the 2030 Agenda – and hence the Sustainable Development Goals – will be reviewed by United Nations Member States in July 2018.

Despite improvements in past decades, a large number of developing countries, particularly in sub-Saharan Africa and the least-developed countries, still lag behind in terms of access to water, sanitation, energy and logistic services performance. International trade plays a growing role in the provision of some of these services and has an untapped potential in others. Efforts are being made through multilateral and regional trade negotiations to enhance trade in these sectors by addressing market access issues and regulatory measures.

When making liberalization commitments, developing countries should be aware of their regulatory and institutional capacities, especially in services relating to water and sanitation, and energy. Given the regulatory divergence among countries, it is important to combine liberalization with regulatory cooperation and coordination. At the regional level, sector-specific agreements – such as those dealing with energy – that take a holistic approach to market access, and regulatory measures might be a means to promote regional development by sharing resources. Better data remains critical for the development of these sectors. More steps should be taken to improve data collection in these sectors, as better data remains essential for evidence-based policymaking.

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Introduction

1. As a major contributor to output, jobs, investment and trade value added, services are key to economic and human development, and hence to the achievement of the inclusive and Sustainable Development Goals set out in the 2030 Agenda for Sustainable Development.

2. United Nations Member States will conduct a thematic review of progress on the 2030 Agenda at the high-level political forum on sustainable development from 9 to 18 July 2018. The forum, whose theme is "Transformation towards sustainable and resilient societies", will examine progress achieved in relation to specific goals, including Goal 6 (ensure availability and sustainable management of water and sanitation for all), 7 (ensure access to affordable, reliable, sustainable and modern energy for all), 12 (ensure sustainable consumption and production patterns) and 17 (strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development).

3. With a focus on trade in services dealing with water and sanitation, energy and food-related logistics with a view to achieving inclusive and sustainable development, this note aims to provide a background for the discussions to be held at the sixth session of the Multi-year Expert Meeting on Trade, Services and Development, particularly on how to enhance the role of trade in these services in the achievement of relevant Sustainable Development Goals. It could also provide a useful approach for United Nations Member States in conducting the aforementioned thematic review.

I. Role of services in the Sustainable Development Goals

4. Services contribute to equality and poverty reduction. First, productivity improvements in the services sector contribute to overall productivity increases through the sector's direct importance in the economy and its effects as inputs to all economic sectors. A forthcoming UNCTAD study suggests that the services sector is responsible for two thirds of total productivity growth in developing countries. Second, services are particularly relevant for microenterprises, and small and medium-sized enterprises. By improving the productivity of these enterprises, services promote opportunities for them to join value chains – and for many such enterprises and workers – to enter the formal economy. As services activities may be less dependent on economies of scale and less capital intensive, they could facilitate the integration of microenterprises, and small and medium-sized enterprises in value chains. Moreover, services can be providers of atomized inputs for different stages of broader productive processes. Microenterprises, and small and medium-sized enterprises can concentrate on producing inputs of such atomized services rather than facing the challenge of producing the whole final product.

5. Under the 2030 Agenda, Member States of the United Nations have a commitment to achieve, a number of goals and targets specific to services, including those relating to water and sanitation (Goal 6) and energy (Goal 7). The achievement of several other goals and targets will be facilitated by some services, such as logistics services, the improvement of which will contribute to sustainable production and consumption patterns, and to the reduction of food losses under Goal 12 in particular. Below is a brief mapping of these services in the Sustainable Development Goals. Trade in services, which falls under Goal17 as a means of implementation, is relevant across the Sustainable Development Goals.

A. Water and sanitation

6. Water, an essential element of life, features heavily in numerous Sustainable Development Goals, for example, Goals 3, 4, 6, 11, 12, 14 and 15. Sanitation is explicitly mentioned in Goals 4 and 6.

7. Access to safe water and sanitation and the sound management of freshwater ecosystems are not only essential to human health and environmental sustainability but to economic prosperity as well. Hence Goal 6 aims at ensuring the availability and sustainable management of water and sanitation for all through specific targets, including the achievement of universal and equitable access to safe and affordable drinking water. Other targets include the expansion of international cooperation and capacity-building support to developing countries in water- and sanitation-related activities and programmes (for example, water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies) and the involvement of local communities in improving water and sanitation management.

B. Energy and energy services

8. Under Goal 7, United Nations Member States have committed specifically to ensuring access to affordable, reliable, sustainable and modern energy for all, including ensuring universal access to affordable, reliable and modern energy services.

9. While the extraction or production of energy and generation of electricity per se is considered production of goods, there is broad understanding that energy services should include those involved in the exploration, development, extraction, transportation, transmission, distribution, marketing, consumption, trade and management of energy and energy-related products such as electricity. Hence energy services are extensive in scope, given the long chains of the energy sector.[1] To reduce the negative externalities of energy production and consumption, new services have emerged. These include carbon capture and storage services, and energy efficiency-targeted services such as energy auditing and environmental impact assessment. In the electricity sector, new technology and processes such as smart grids and smart metering have been adopted. These contribute not only to improved service quality but also to more efficient energy services, as power outages and power quality can be monitored more closely while allowing for real-time demand response.

10. Global population increase, economic growth and urbanization are behind the growing demand for energy. As a necessity for economic activity and social life, the reliable supply of energy and energy services at affordable prices has a significant bearing on economic growth and poverty reduction and elimination. Energy production using oil and coal produces carbon dioxide emissions. Hence the efficiency in using oil, gas and coal and the need to increase the use of renewable energy – hydropower; biomass; and solar, wind, geothermal, wave and tidal energy, for example – has become a pressing issue in many countries.

C. Food-related logistics

11. Logistics services involve many sectors that can be broken down by mode of transport (for example, road), means (for example, trucks) or goods (for example, grain).[2]

[1] Examples of energy services are energy exploration and prospecting, drilling, engineering services, integrated engineering services, construction work, management consulting services, services related to coal mining and oil and gas extraction, storage, transportation of oil and natural gas through pipelines or by road or sea, related scientific and technical consulting services, maintenance and repair of equipment, bulk storage and warehousing services of liquids and gases, wholesaling and retailing of energy, and metering and billing of energy consumption, such as gas and electricity.

[2] These consist of activities performed in and around the transportation of cargo, such as cargo-handling services between different modes of transport, storage and warehouse services and freight transport agency services. The latter include other auxiliary transport services and other supporting services (freight brokerage services; bill auditing and freight rate information services; transportation document preparation services; packing and unpacking services; freight inspection, weighing and sampling services; and freight receiving and acceptance services).

12. Logistics are not mentioned specifically in the Sustainable Development Goals, yet they are a vital element surrounding production processes and consumption. Good quality logistics can contribute in particular to the reduction of food losses under Goal 12, as food loss occurring before reaching the end consumer can be largely attributable to poor harvesting, storage or distribution.

13. Given that the world population continues to grow, there is mounting pressure to feed more people without using more resources. However, according to estimates by the Food and Agriculture Organization of the United Nations, annual food loss and waste in the world amounts to 30 per cent of cereal production; 40–50 percent of root crop, fruit and vegetable production; 20 per cent of oilseed production, meat and dairy products; and 35 per cent of fish production.[3] The impact of such loss and waste is substantial. It has been estimated that food loss and waste is responsible for economic losses of $680 billion in developed countries and $310 billion in developing countries.[4] However, the impact of food loss is not only financial. Valuable other resources used to produce and transport this food are also wasted, for example, fertilizer, fresh water and packaging, as well as energy, fuel and time put into obtaining these resources. Global food loss and waste also generates about 8 per cent of total anthropogenic greenhouse gas emissions annually.[5]

II. Dynamics of services relating to water and sanitation, energy and food-related logistics

14. Services have become a major contributor to output, jobs, investment and trade in all economies. In 2015, the share of services in gross domestic product (GDP) increased across all income levels, reaching 76 per cent in developed economies, 55 per cent in developing economies and 47 per cent in the least developed countries. The services sector accounts for over half of GDP in all developing regions: Latin America and the Caribbean, 65 per cent; Africa, 54 per cent; and Asia, 53 per cent. The increase in services output is accompanied by a decrease in industrial GDP in developed economies and a reduction mainly of agricultural output, but also of industrial GDP, in developing economies.[6]

15. The prevalence of the services sector is also reflected in employment, where it is estimated to account for 59 per cent of jobs globally, 82 per cent in developed economies and 54 per cent in developing economies. Jobs have grown more in this sector, registering 2.8 per cent annual growth between 2000 and 2017.[7] This trend is more pronounced in developing economies, reaching 3.4 per cent in the same period. The employment-creating effect of services implies that services are central for inclusiveness, particularly as global unemployment is expected to remain high at more than 201 million unemployed in 2017, equivalent to a global unemployment rate of 5.8 per cent. This represents an increase of 3.4 million people over the previous year.[8]

16. Research and data suggest that the services sector contributes to gender equality and empowerment. Women's employment is mostly concentrated in services (58 per cent in 2017), followed by agriculture (31 per cent) and manufacturing (10 per cent). In the developed economies, the share of women's employment in services is even larger (89 per cent), owing to their important contributions to health, education and other business services. In the developing economies, services represent a smaller, yet still significant

[3] Food and Agriculture Organization of the United Nations, 2018, Save Food: Global Initiative on Food Loss and Waste Reduction, available at http://www.fao.org/save-food/resources/keyfindings/en/.

[4] Ibid.

[5] European Commission, Joint Research Centre and Netherlands Environmental Assessment Agency, 2012, Emissions Database for Global Atmospheric Research, version 4.2.

[6] UNCTADstat.

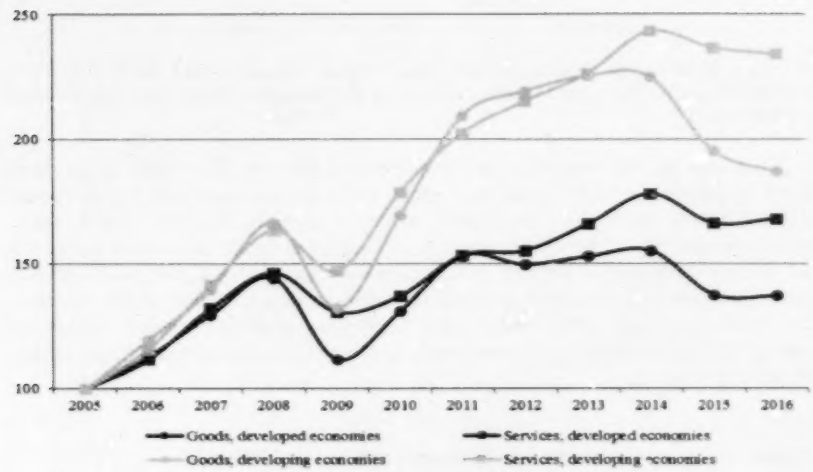
[7] ILOSTAT, database of the International Labour Organization.

[8] International Labour Organization, 2017. *World Employment and Social Outlook: Trends 2017* (International Labour Office, Geneva).

share of women's employment (51 per cent), owing to the large contribution of agriculture (37 per cent) to women's employment.[9]

17. The importance of trade in services is revealed by greater dynamism of services exports over goods exports in both the developed and developing economies. The contribution of services to total exports increased from 25 to 29 per cent in the developed economies and from 14 to 17 per cent in developing economies between 2005 and 2016. Services exports have been growing faster in developing economies than in developed economies, recording an 8 per cent annual increase between 2005 and 2016. Figure 1 demonstrates that services were relatively resilient during the 2009 global economic and financial crisis and again in 2016, when unlike goods exports, global services exports resumed growth after the recent downturn in trade.

Figure 1
Exports of services and goods by income level, 2005–2016
(2005 = 100)



Source: UNCTAD secretariat calculations based on data from UNCTADstat.

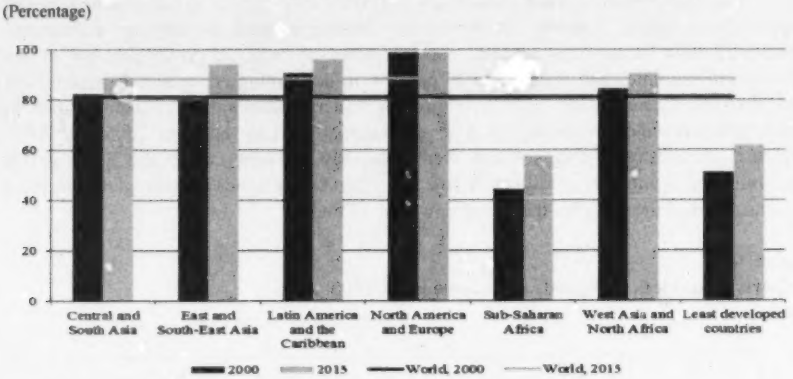
18. Statistics on these services per se are unavailable and difficult to obtain. Among the reasons for this is the lack of a separate category of these services in classifications established for statistical purposes.

19. The level of access to water, sanitation and energy and the logistics performance level in developing and least developed countries may illustrate the development of these services. While these services have become basic services readily available to residents of developed countries, they are in serious shortage in many developing countries and least developed countries.

20. Access to drinking water in at least basic conditions improved between 2000 and 2015 across all levels of income and developing regions. Notwithstanding, progress is required in many developing regions, as access to drinking water is a human right and a basic service required for human, economic and social development. This need is particularly acute in sub-Saharan African and the least developed countries, where access to drinking water in 2015 was only 58 per cent and 62 per cent, respectively (figure 2).

[9] ILOSTAT database.

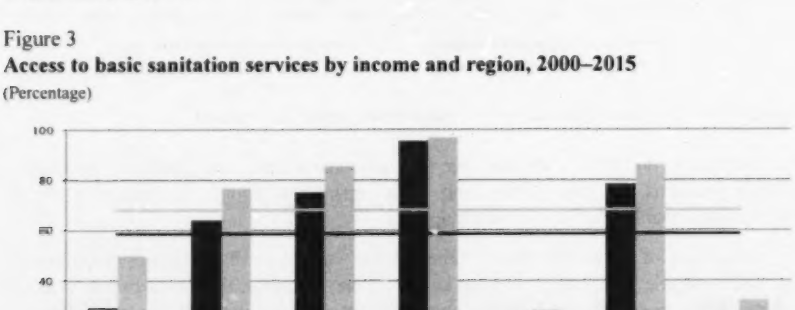
Figure 2
At least basic access to drinking water by income and region, 2000–2015
(Percentage)



Source: World Health Organization and United Nations Children's Fund, 2017, *Progress on Drinking Water, Sanitation and Hygiene: 2017 Update and Sustainable Development Goal Baselines* (Switzerland).

21. Access to basic sanitation services between 2000 and 2015 improved across all levels of income and in all developing regions. However, important asymmetries remain, and 2.3 billion people still lack basic sanitation services. In 2015, while access to such services was 97 per cent in North America and Europe, it was only 29 per cent in sub-Saharan Africa and 32 per cent in the least developed countries. Central and South Asia remain underserved, but access to basic sanitation services in those regions improved 72 per cent between 2000 and 2015. Significant progress remains critical in sub-Saharan Africa where, in the same period, access to basic sanitation services grew only 14 per cent (figure 3).

Figure 3
Access to basic sanitation services by income and region, 2000–2015
(Percentage)

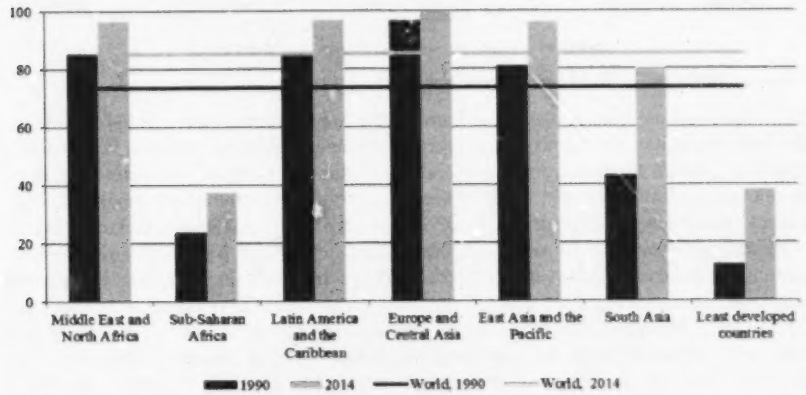


Source: World Health Organization and United Nations Children's Fund, 2017.

22. While the sharpest increase in electricity access since 1990 was recorded in South Asia, electricity poverty is still prevalent in many countries in Africa, home to most of the least developed countries. Despite some improvement since 1990, access to electricity in sub-Saharan Africa is still below 40 per cent (figure 4). The figure remains below 20 per cent in rural areas, and below 1 per cent in some countries of the region.[10]

23. The least developed countries have made considerable progress in increasing access to electricity, more than tripling from 12 percent in 1991 to 38 per cent in 2014; this represents an increase of 300 million people with access. Notwithstanding, such an increase results from a very low starting point, and these countries still face a big challenge: 62 per cent of people living in the least developed countries still have no access to electricity, compared with 10 per cent in other developing countries. Furthermore, 54 per cent of people without electricity worldwide live in these countries.[11]

Figure 4
Population with access to electricity by developing region, 1990 and 2014
(Percentage)



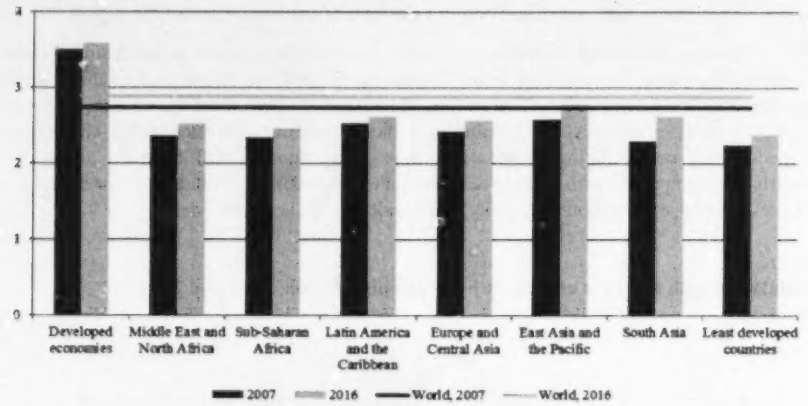
Source: World Bank, Sustainable Energy for All database.

24. Developing economies are lagging behind in logistics performance, in spite of some improvement across all levels of income, and in all developing regions between 2007 and 2016. In 2016, while developed economies were rated 3.6 in the overall logistics performance index, sub-Saharan African was rated 2.5 and the least developed countries, 2.4 (figure 5).

[10] International Energy Agency, 2017, *World Energy Balances 2017* (Organization for Economic Cooperation and Development).

[11] UNCTAD, 2017, *The Least Developed Countries Report 2017: Transformational energy access* (United Nations publication, Sales No. E.17.II.D.6, New York and Geneva).

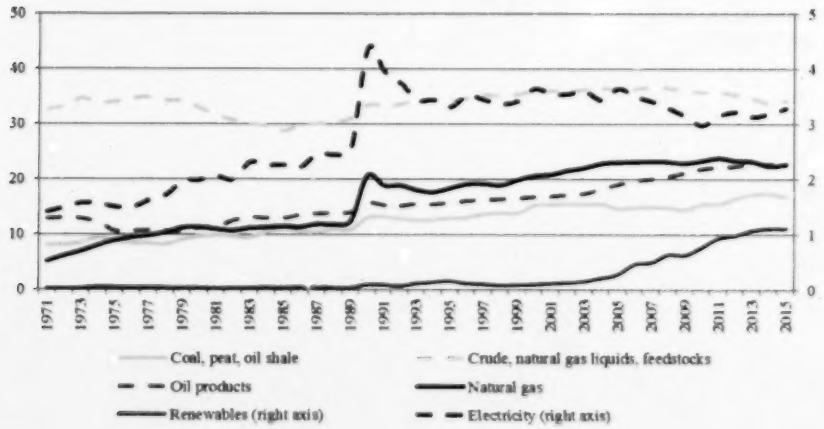
Figure 5
Logistics performance index: Overall, by income and developing region, 2007 and 2016
(1 = low; 5 = high)



Source: World Bank, World Development Indicators.

25. International trade is playing an increasingly important role in the provision of these services. Again, it is difficult to obtain direct data from current trade statistics. In the energy sector, one option for measuring energy provision through trade may be consideration of the relevance of imports in the supply of energy. Energy provision through imported energy sources has become relevant in most energy types. International markets have a longstanding importance for crude oil, natural gas liquids and feedstocks, with imports accounting for over 30 per cent of global supply. In 2015, imports also represented meaningful shares of supply in coal (17 per cent), oil products (23 per cent) and natural gas (23 per cent). Imports of electricity and renewable sources only account for 3 per cent and 1 per cent, respectively, of the corresponding global supplies. However, between 2010 and 2015, the global share of imports of renewable sources of energy increased 7.5 per cent annually (figure 6).

Figure 6
Share of imports in global supply by energy type, 1971–2015
(Percentage)



Source: International Energy Agency, 2017, Headline global energy data, 2017, available at https://www.iea.org/media/statistics/IEA_HeadlineEnergyData_2017.xlsx (accessed 15 February 2018).

26. Trade in water and sanitation, energy and logistics services mainly occurs through commercial presence (mode 3) and can be roughly inferred from greenfield investment levels. The electricity, gas and water sector is the largest receiver of foreign direct investment, representing 15 per cent of total greenfield investment in 2016. The sector recorded the second-fastest growth, behind textiles, with an annual growth rate of 9 per cent between 2006 and 2016. Renewables are capturing two thirds of global investment in power plants, as they are often the least costly source of new power generation.[12]

27. Likewise, trade in logistics services mainly occurs through mode 3. As companies are focusing more and more on core business competency, there is a growing preference for outsource logistics operations. The third-party logistics market is set to benefit from a better use of technology to improve processes and lower costs, which is likely to result in a year-on-year growth rate of 4.4 per cent of third-party logistics between 2015 and 2022.[13] Despite its importance, the provision of other supporting and auxiliary transport services does not contribute greatly to services exports captured by the balance of payments, remaining around 0.6 per cent of total services exports in the European Union in 2016, growing only 1.4 per cent annually between 2010 and 2016.[14]

III. Efforts to enhance trade in water and sanitation

28. Governments used to the be main suppliers of water services such as water distribution, water management and sanitation services. Over the past few decades, however, some countries – Kenya, Yemen and Zambia, for example – have shifted away from this model towards allowing participation of the private sector in water services, while retaining their involvement in related government procurement and regulation. With the increasing involvement of private players, a market for these services – in particular environmental services – has emerged. Most trade in these services takes place through mode 3 and the related movement of natural persons (mode 4) but mode 1 (cross-border trade) and mode 2 (consumption abroad) may also be relevant, for example, with regard to consultancy services. However, as indicated earlier, it is difficult to assess the size of this market, since there are few statistics for trade in environmental services. Most firms supplying environmental services tend to be based in the developed countries, which are the leading exporters of environmental services and holders of the largest share of the market.

29. While the General Agreement on Trade in Services makes no reference to water, it speaks of "any service in any sector except services supplied in the exercise of governmental authority". This suggests that the Agreement would apply to water services, including essential services such as water distribution, unless supplied in the exercise of governmental authority. During the Uruguay Round, services negotiators did not consider it necessary to include a stand-alone category of water-related services in the classification list that they used for negotiations.

30. As a result, water and sanitation services can be found in a sector called environmental services, which includes four subsectors, as follows (see table):

(a) Sewage services;[15]

(b) Refuse disposal services;

(c) Sanitation and similar services;

(d) Other.

[12] UNCTAD, 2017. *World Investment Report 2017: Investment and the Digital Economy* (United Nations publication, Sales No. E.17.II.D.3, Geneva).

[13] See https://www.gminsights.com/blogs/third-party-logistics-3PL-industry-trends (accessed 19 February 2018).

[14] OECD Stat (database of the Organization for Economic Cooperation and Development).

[15] This is the only subsector of environmental services that relates directly to water.

Environmental services sectors under the General Agreement on Trade in Services

Sector	*Definition*
Sewage services	Sewage removal, treatment and disposal services. Equipment used are waste pipes, sewers or drains, cesspools or septic tanks; processes utilized may be dilution, screening and filtering, sedimentation or chemical precipitation, for example. (Not included: Water collection, purification and distribution services are classified under natural water. Construction, repair and alteration work of sewers are classified under construction work for waterways, harbours, dams and other waterworks.)
Refuse disposal services	Refuse collection and disposal services: collection services of waste (whether from households or industrial and commercial establishments), transport services and disposal services by incineration or other means, as well as waste reduction services.
Sanitation and similar services	Other sanitation and similar services, including outdoor sweeping services and snow- and ice-clearing services.
Other	No explanatory note available.

Source: United Nations Provisional Central Product Classification.

31. Seventy-one members of the World Trade Organization (WTO) have made specific commitments to environmental services. The highest number of commitments relate to sewage services (60 members), followed closely by the three other subsectors (see table), with commitments from 59 members each. Forty-seven members have made commitments across the four subsectors. Under mode 3, the most relevant mode of supply of environmental services, restrictions tend to be found in the horizontal commitments, which typically include approval requirements, economic needs tests, limitations on the purchase or rental of real estate, restrictions on equity holdings, residency requirements for directors, and tax and subsidy measures, which thus apply to environmental services. Limitations in members' horizontal commitments under mode 4 also apply.

32. Environmental services are covered by the services negotiations of the Doha Round. However, environmental goods and services were also singled out for liberalization in the Doha Declaration. While environmental services have been part of the services negotiations, environmental goods have been part of the non-agricultural market access negotiations. A few developing countries have submitted negotiating proposals. While recognizing that opening up the markets could create conditions favourable to the development of the environmental services sector in developing countries, one of the proposals put forward during the negotiations emphasized that the requisite conditions for ensuring the protection of health, safety and the environment should have been established, suggesting that market access should be linked to the transfer of associated know-how. It also requested commitments guaranteeing developing countries' services exports under the modes of supply of interest to them.

33. Nine WTO members co-sponsored a plurilateral request concerning environmental services, seeking commitments across all environmental services subsectors using the corresponding provisional United Nations Central Product Classification code 94 classifications (in contrast to the WTO classification list, which contains four subsectors). The co-sponsors requested the targeted members of the request to fully open mode 2 and wherever possible mode 1, and ensure mobility of service suppliers involved in the supply of environmental services. Under mode 3, the co-sponsors requested removal of foreign equity limitations and joint operation requirements. Nevertheless, the request

clearly excludes water for human use, that is to say, the collection, purification and distribution of natural water, as well as government procurement contracts.

34. Regional trade agreements have tended to include commitments for environmental services that are equivalent to or go beyond the participating parties' WTO commitments. Reviews of such agreements show that negative-list agreements have a somewhat higher level of commitment than positive-list agreements and that the difference between WTO commitments and commitments found in regional trade agreements tend to be greater for developing countries, owing to their generally lower number of commitments in WTO). Examples of countries that have gone further in regional trade agreements than in the General Agreement on Trade in Services include Pakistan (Pakistan–Malaysia), Peru (Peru–China) and countries in Central America and the Caribbean in their agreement with the European Union. Some developed countries, including Australia, Japan and Norway, as well as some in the European Union, also go beyond their WTO commitments in some positive-list regional trade agreements. No negative-list regional trade agreement totally excludes environmental services. Reservations generally concern water supply and wastewater services, among other sensitive subsectors. Horizontal reservations concerning public services or public utilities are likely to affect environmental services as well.[16]

35. Given countries' uneven levels of technology, trade in environmental services may contribute to the diffusion of these services by a reduction of trade barriers. While the environmental services included in trade agreements can considered one means of increasing access to services that can contribute to the achievement of Goal 6 (for example, through imports of consultancy services relating to wastewater treatment or integrated engineering services for water supply projects), these trade flows are likely to concern non-infrastructure services for the most part. Therefore, attracting investment in water-related infrastructure will also remain a priority.[17] A review of investments in this sector is also important in providing a full view of government measures for achieving Goal 6.

36. Cooperation is important for regional water management and is crucial in addressing sensitive issues, such as water allocation, upstream and downstream impacts of water pollution and water abstraction, overexploitation and the financing of water management, as stated in the Report of the Secretary-General on the International Year of Water Cooperation (A/69/326). Pressure on water resources stem from various economic activities, including agriculture and industry, and related negative externalities such as pollution and fast-paced urbanization. Regional water cooperation can take many forms, ranging from water transfer across boundaries to the management of shared water resources, such as underground aquifers and river basins; scientific data exchange; financial and technical cooperation; and gender-sensitive water governance.

37. An example of regional water cooperation is the Lesotho Highlands Water Project, which involves the construction of an intricate network of tunnels and dams to divert water from the mountains of Lesotho to South Africa. In return, Lesotho receives income and hydroelectricity from South Africa. Phase 1, completed in 2004, has successfully led to water transfers, while phase 2 is projected to deliver water by 2020. The two countries have initiated discussions with Botswana to evaluate the possibility of transferring water from Lesotho to Botswana and its potential impacts on planned and existing water transfers to South Africa. While water transfers to South Africa represent 10 per cent of the total government revenues of Lesotho, and transfers to Botswana would increase revenues further, policymakers should balance the revenue streams from these transfers with national development needs.[18]

[16] WTO, 2010, Background note on environmental services, S/C/W/320, 20 August.

[17] A Le Vernoy, 2017, The trade and water nexus, Asian Development Bank Institute, Working Paper 669.

[18] World Bank, 2016, Lesotho water security and climate change assessment, Working Paper.

IV. Efforts to enhance trade in energy services

38. Improving the provision of energy services, including by expanding their trade, could play an important role in achieving Goal 7, as these services are indispensable to the production, consumption, trade and management of energy. For example, although Myanmar has a high level of self-sufficiency, only 35 per cent of the population had access to electricity in 2014, owing to a lack of a common interconnected transmission system in the country.[19] For the same reason, the rural electrification rate in the Lao People's Democratic Republic is currently 30 per cent.[20]

39. Trade in energy services is subject to various measures embodied in laws and regulations or in the practices of authorities or regulators. They usually take the form of market entry requirements, regulatory requirements and procedures (for example, licensing and approval) and are found mainly in modes 3 and 4. Under mode 3, there are limitations to market access of foreign services suppliers such as entry bans, services suppliers quotas, economic needs tests, foreign equity limitations, and joint ventures and joint operations requirements for foreign services suppliers. National treatment restrictions, such as discriminatory licensing requirements and procedures or national-only subsidies, are applied to foreign services suppliers. Restrictions on the entry of equipment for production and maintenance services also impede trade in energy services.

40. Barriers under mode 4 include quotas, economic needs tests, labour market tests, non-recognition of foreign academic titles and qualifications, strict visa requirements and burdensome or discretionary visa procedures, limitations on the period of stay in host countries, nationality and residency requirements for board members and limitations to the presence of foreign managers. Requirements to provide cross-border energy services solely through commercial presence effectively restrict cross-border trade in energy services. In the electricity sector, additional barriers include differences in technical standards, a lack of interconnection between national electricity grids and a lack of third-party access to transmission and distribution networks. In all modes of trade in energy services, the lack of transparent government regulations and procedures also represents a barrier to foreign services suppliers.

41. Lack of regulation can also hinder trade in energy services. For example, there is a need for regulation to address market failures such as market concentration, information asymmetries and difficult access to an incumbent's network or access preference provided by network incumbents to existing large network users, while impeding access of new network users, usually small-scale services providers.

42. Energy services do not exist as a sector or subsector per se in WTO, but are mostly scattered among other sectors or subsectors. The number of commitments made by WTO members in energy services is relatively small, partially due to lack of a separate categorization of these services. Commitments are found in a few subsectors of relevance to energy and electricity services, such as services incidental to mining and energy distribution – of electricity in particular – and pipeline transportation services. Important energy-related services linked to transport, distribution, construction, consulting and engineering, for example, may, however, be covered by the respective sectors or subsectors.

43. The liberalization of energy services is one of the negotiating items of the Doha Round. A plurilateral request from 10 WTO members for wider and deeper commitments in energy services includes several of the above-mentioned measures. Given the similarities of energy to telecommunication, a suggestion was made in the Doha Round to adopt regulatory disciplines on energy similar to the reference papers on basic telecommunication services discussing competitive safeguards, interconnection and universal service.

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[19] Asian Development Bank, 2016, *Greater Mekong Subregion: Energy Sector Assessment, Strategy and Road Map* (Manila).

[20] Intelligent Energy Systems and Mekong Economics, 2016, Alternatives for Power Generation in The Greater Mekong Sub-Region, Vol. 3, Power Sector Vision for the Lao People's Democratic Republic.

44. Liberalizing a number of energy services, particularly those upstream of the sector, may merit consideration in countries' efforts to increase the energy supply, given that services relating to energy generation, transmission and distribution had been supplied in the past by Governments and were extensively regulated, owing to the nature of energy services as a public good and the large investment involved. This remains true in many developing and least developed countries. However, the liberalization of these services might be better undertaken with due recognition of a country's regulatory and institutional capacity, as well as the need to ensure universal access once the services are liberalized.

45. North–South and South–South regional trade agreements often cover energy services. Commitments by developing countries under such agreements usually go beyond those in WTO. For example, under the Framework Agreement on Services of the Association of Southeast Asian Nations, WTO-plus commitments were made by some of the members of the Association in services related to energy manufacturing, including electricity, and services incidental to energy distribution, with the equity limitations ranging from 40–70 per cent.

46. A number of free trade agreements between the United States of America and its trading partners,[21] some of which are developing countries, contain commitments explicitly referring to energy services, such as energy distribution, services incidental to energy distribution, electricity transmission and distribution. While modes 1 and 2 are generally open, various limitations exist under the other modes. For example, limitations under mode 3 include monopoly and exclusive providers for electric transmission or distribution or wholesale distribution of petroleum products, restrictions on the number of services providers and concessions for services incidental to energy distribution, limitations on the aggregate foreign share in electricity generating facilities and distribution, and branching requirements for foreign services suppliers seeking exploration contracts. Under mode 4, limitations include quotas, economic needs tests, including for intra-corporate transferees providing services incidental to energy distribution, residential requirements for foreign managing directors and nationality requirements.

47. Evidence suggests that liberalization alone is not sufficient to promote trade flows in energy services among partners. The liberalization of trade in electricity in the Andean Community has not led to an expansion of such trade, owing to a lack of interconnection; differing pricing practices associated with cross-border distribution and differing environmental, accounting and tax regulations. These factors can only be addressed through regulatory harmonization or cooperation among the parties concerned.[22]

48. The importance of regional cooperation and coordination in facilitating trade in energy and energy services has prompted countries to pursue the facilitation of regional trade in energy and energy services by reaching agreements specifically on the energy sector, whether the countries have entered into regional trade agreements or not. The Regional Power Trade Operating Agreement among the six countries of the Greater Mekong Subregion (Cambodia, China, the Lao People's Democratic Republic, Myanmar, Thailand and Viet Nam) is a case in point (see box).

[21] For example, free trade agreements between the United States and Chile, the United States and Jordan, and the United States and the Republic of Korea.

[22] Economic Commission for Latin America and the Caribbean, 2011, *Centroamérica: Mercados Mayoristas de Electricidad y Transacciones en el Mercado Eléctrico Regional* (United Nations publication, Mexico City).

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Cambodia, China, the Lao People's Democratic Republic, Myanmar, Thailand and Viet Nam are parties to the Agreement on Trade in Services of the Framework Agreement on Comprehensive Economic Cooperation between the Association of Southeast Asian Nations and China. The Agreement, which entered into force in July 2007, contains few commitments explicitly related to energy. In order to establish a regional power market to address energy poverty within a region endowed with limited energy resources, these countries signed the Regional Power Trade Operating Agreement in December 2002, hoping to ensure cost-effective energy supply in the region through the integration of power systems and the facilitation of power trade. The Agreement has been successful in promoting bilateral power trade. Cambodia has been importing electricity from the Lao People's Democratic Republic (south) since 2010, Thailand since 2009, and Viet Nam (south) since 2008; the Lao People's Democratic Republic (north) has been importing from Yunnan Province of China since 2009; Viet Nam (north) has been importing from the Yunnan Province of China since 2004; and the Yunnan Province of China has been importing from Myanmar since 2008. This growth in trade enhances the access of the local population to energy and energy services. For example, as Cambodia has a small electricity capacity and almost depends entirely on imports, electricity imports from its neighbouring countries are a significant contributor to the supply of electricity in its border areas.

However, a regional power market has yet to become a reality. The absence of a permanent institution to follow up and monitor activities has been a significant constraint. To meet this need, the Regional Power Coordination Centre was set up in December 2013, under the Regional Power Trade Coordination Committee. The Committee, comprised of energy ministries, power generators and regulators, is aimed at governing power trade in the Greater Mekong Subregion by exercising strong coordination in planning and grid operation to optimize the use of resources on multiple systems, meet the load on the interconnected systems and establish a pricing and regulatory environment related to third-party access to the grid. Due to a hosting site issue, the Committee has not become functional. Its work is being handled by two working groups. One deals with regulatory issues to ensure the compatibility of technical operations of national power systems and the functioning of new financial mechanisms at the regional level. The other establishes performance standards and grid codes; implements common standards for operational security, reliability and the quality of supply of the interconnected system of the Greater Mekong Subregion; encourages an integrated planning of power system expansion; and ensures non-discriminatory access to the interconnected system for users.

In 2016, countries in the Subregion completed bilateral cross-border connections through power purchasing agreements between a power utility located in one country in the Subregion selling power to a power utility in another country in the Subregion. They are now moving to establish an effective regional power market by allowing grid-to-grid power trading between any pair of countries in the Subregion, eventually using transmission facilities of a third regional country. It is expected that Greater Mekong Subregion performance standards and grid codes, regulatory framework guidelines and transmission tariff methodology will be established by 2022. This will allow the establishment of a competitive regional power market, enabling exporting countries such as the Lao People's Democratic Republic and Myanmar to obtain better prices than through the current approach. As a result, these countries will gain more benefits from power exports.

Source: Asian Development Bank, 2016.

49. The energy sector in Central America, Colombia and Mexico is shaped by strong asymmetries that derive from differences in size, development level and resource endowment of each country. Central American countries face an important challenge with regard to oil supply, while Colombia and Mexico, though not immune to serious energy challenges of their own, have much larger energy reserves of coal and gas (Colombia) and oil and gas (Mexico). To reap the potential for efficiency and availability of energy supply in the region through energy integration and a regional electricity market, the Electricity Interconnection System for the Countries of Central America, also known by its Spanish acronym SIEPAC, comprises the installation of an 1,800 km-long transmission line covering all of Central America and, since 2010, the interconnection between Mexico and Guatemala. Contract and spot markets were created. Legal instruments such as the Framework Agreement on the Regional Electricity Market and the Infrastructure Regulation of Electricity Networks were instituted to support the functioning of the regional market.[23]

50. The latest available data show that trade in regional energy in 2013 almost doubled that of 2012. Guatemala and Mexico were the main electricity exporters, benefiting from the establishment of this regional infrastructure and market. Member countries are evaluating how to improve the regional electricity market to allow for long-term contracts and to strengthen the institutional framework, including the Council of Energy Ministers of the Central American Integration System, or SICA.[24]

V. Efforts to facilitate trade in food-related logistics services

51. Logistic services are a key component of the food supply chain, linking consumers to producers, integrating markets within an economy and integrating these domestic markets with the rest of the world through exports and imports. Improvements in logistics help reduce delivery times and costs, and thus contribute to the achievement of Goal 12 by reducing food losses.

52. The logistics services category does not exist in the WTO classification. However, there is a category for transport services classified by modes – maritime, air, rail, road and other modes (pipeline, space and internal waterway transport). Within each of these groups are services such as equipment rental, pushing and towing services and generic supporting services. There is also a separate category called services auxiliary to all modes of transport (cargo-handling services, storage and warehouse services, freight transport agency services and others).

53. The dispersion of logistics services throughout the sectoral classification list may be due to changes in business practices. Concepts such as port-to-port transport have become door-to-door transport, maritime vessels are now considered floating warehouses that facilitate just-in-time deliveries, and supply-chain efficiency has become the new private sector focus. Since the creation of the list, more companies have become willing to outsource non-core activities, which have given rise to dedicated third-party logistics service providers.

54. In WTO, 102 members have made specific commitments relating to logistics services. By category, air transport services received the most commitments (68), followed by maritime transport services (62), services auxiliary to all modes of transport (60), road transport services (59), rail transport services (40), internal waterways transport (21), pipeline transport (16), other transport services (8) and space transport (3).

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[23] Economic Commission for Latin America and the Caribbean, 2011, Países en el Proyecto Mesoamérica: Tendencias económicas y sociales, available at http://www.proyectomesoamerica.org/joomla/images/Documentos/Articulos/Pa%C3%ADses%20en%20el%20PM%20-%20Tendencias%20econ%C3%B3micas%20sociales.pdf (accessed 22 February 2018).

[24] Economic Commission for Latin America and the Caribbean, 2015, *Una mirada a los países del Proyecto Mesoamérica* (United Nations publication, Mexico City).

55. Logistics services have been the subject of negotiation during the Doha Round. In an effort to bring the liberalization of these services to the fore, 7 WTO members made a plurilateral request that won the support of 13 other members, including some developing country members. The request called for specific commitments on core freight logistics services and freight transport services under modes 1, 2 and 3; other related logistics services under mode 3; and non-core freight logistics services – services that are desirable for a comprehensive offer on freight logistics services. Other plurilateral requests pertained to mode-specific transport, such as air and maritime transport.

56. The essence of the aforementioned request was to seek a number of commitments as follows:

(a) Permit supply of freight logistics services in combination;

(b) Ensure access to and use of core and related freight logistics services on reasonable and non-discriminatory terms;

(c) Make sure that various procedures and formalities such as documentary requirements, customs clearance, customs inspection and electronic processing, are not unnecessarily burdensome;

(d) Accept electronic versions of trade administration documents.

57. Items (c) and (d) appear to have been addressed in the Agreement on Trade Facilitation Agreement, which entered into force in 2017.

58. The provision of logistics services involves the cooperation of stakeholders from government and the private sector. To address the complex nature of logistics services, many countries have established logistics coordination mechanisms, for example, the Malaysian National Logistics Development Council, the National Logistics Policies Committee (the Republic of Korea) and the National Logistics Council (Thailand). They could play a useful role in designing their countries' logistics services liberalization programmes.

59. Good quality logistics services can contribute positively to regional trade in agricultural goods and reduce food losses. A study[25] of agricultural supply chains in Central America shows that between 29 and 48 per cent of the import price of grains come from logistics costs. Such costs could be reduced by implementing measures to facilitate logistics services such as the following:

(a) Addressing inspection and border crossing procedures;

(b) Harmonizing phytosanitary and customs controls;

(c) Allowing for reciprocal backhaul on international trucking routes;

(d) Harmonizing shipping and trucking regulations across borders;

(e) Protecting the rights of way of road corridors so that they remain free of congestion;

(f) Allowing for modern port management practices.[26]

60. Estimates suggest that reforms that deliver more competition could reduce the cost of transporting food in West Africa by 50 per cent within 10 years. Another study finds that a 50 per cent reduction in transport costs would increase agricultural GDP in Mozambique by 7 per cent and in neighbouring landlocked Malawi by 3 per cent.[27] Highlighting the challenge of government in producing the appropriate policy mix, efforts to reduce the negative externalities of truck emissions through bans on certain roads in the

[25] World Bank, 2011, Food prices: Eating the costs of logistics, available at http://blogs.worldbank.org/latinamerica/food-prices-eating-the-cost-of-logistics.

[26] Ibid.

[27] World Bank, 2012, Africa Can Help Feed Africa: Removing Barriers to Regional Trade in Food Staples, No. 73387.

Philippines are hindering efforts to reduce postharvest food losses, estimated at 22 percent of retail cost.[28]

61. Restrictive practices such as cabotage rules aimed at reserving cargo for carriers of landlocked neighbouring countries can also serve to promote inefficiencies and increase costs; these practices often pertain to cross-border trade (mode 1) and consumption abroad (mode 2).[29] These restrictions can force trucks to travel empty, even if cargo destined for the same place is available. Furthermore, the inclusion of food staples on the list of sensitive products in many regional trade agreements presents another challenge.

62. Countries are strengthening cooperation to facilitate logistics services relating to trade in agricultural goods. In recent years, Mexico and the United States have worked to facilitate logistics to reduce food losses, since regulations that increase waiting time at the border can lead to food spoilage. For example, four new lanes were added to the Nogales–Mariposa Port of Entry, through which over half of the Mexican winter produce enters the United States.[30] Improvements to the Mexican Federal Highway that will replace roads constructed in the 1940's could reduce transportation time from Mexico to Texas by more than six hours, saving up to $1,500 in delay and waste per truck.[31]

VI. Conclusions

63. Water is necessary for human development and is a vital input to all sectors of the economy. Policymaking should address these two features of water in a holistic manner. With the increasing involvement of private players in water and sanitation services, a market for these services and environmental services in particular has emerged. While water for human use is rarely liberalized, enhancing trade in other water-related services and sanitation – including through liberalization at the multilateral and regional levels with appropriate policy and regulatory frameworks in place – can provide some solutions to water shortages or quality issues, thus contributing to the achievement of Goal 6.

64. Improved energy services can help greatly towards the achievement of Goal 7 targets. To reach those targets, there may be a need for countries to facilitate increased trade in energy services by addressing various measures at the national, regional and multilateral levels. There is little doubt that all countries have a large stake in facilitating trade in energy services, particularly upstream of the sector. The progress or non-progress of the liberalization of energy services at the regional and multilateral and levels may merit the consideration of different approaches in pursuing facilitation of trade in energy services. The development dimension, including the regulatory and institutional capacity of developing countries, should be carefully considered in these efforts.

65. Logistic services are a key component of the food-supply chain, linking consumers to producers, integrating markets within an economy and integrating these domestic markets with the rest of the world through exports and imports. Improvements in logistics can reduce delivery times and costs, thus improving the food supply chain and contributing to the achievement of Goal 12, particularly its target to reduce food losses.

[28] Business Mirror, 2017, Government exempts suppliers of farm produce from truck ban, 13 March.

[29] World Bank, 2012.

[30] United States–Mexico High-level Regulatory Cooperation Council, 2013, U.S.-Mexico 21st Century Border Management: 2013 Progress Report, available at https://www.dhs.gov/sites/default/files/publications/press/21cb-progress-report-2013.pdf (accessed 21 February 2018).

[31] Centre for North American Studies, 2017, Economic impacts of increased United States imports of fresh produce from Mexico by 2025, Report 2017-1.

66. As experiences in some regions have demonstrated. it is necessary to address both market access issues and regulatory divergences. Regulatory divergences can be tackled, for example, through regulatory cooperation or convergence. Furthermore, data on water and sanitation, energy and logistics services, as well as trade data in these sectors, are difficult to collect. Better data remains critical for the development of these sectors. More steps should be taken to improve data collection in these sectors, as better data remains essential for evidence-based policymaking.